Telemedicine and coping skills groups for Pacific Island veterans with post-traumatic stress disorder: a pilot study

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Summary

Patients with post-traumatic stress disorder (PTSD) were randomly assigned to either an eight-week videoconferencing PTSD coping skills group or a traditional face-to-face PTSD coping skills group. Levels of attrition and compliance, patient satisfaction, clinician satisfaction and patients' retention of information were compared between the two conditions. Of the 41 referred veterans, 20 were eligible and agreed to participate in the study. Three of these participants withdrew from the study before randomization. By the end of the study, 89% of the patients remained in the videoconferencing group, whereas only 50% remained in the face-to-face group. Patients in the face-to-face group attended an average of 4.9 sessions and patients in the videoconferencing group attended 6.3 sessions (this difference was not significant). There was no difference between levels of patient satisfaction or clinician satisfaction at weeks 4 or 8. Patients' retention of information was similar in the two groups. The results show that videoconferencing can be used to provide coping skills groups for veteran patients with PTSD who reside in remote rural locations.

Introduction

Post-traumatic stress disorder (PTSD) is a health problem that affects millions of people in the United States. Approximately 50% of the general population will experience at least one traumatic event during their lives and 8% of this population will develop PTSD[1]. The prevalence of PTSD is considerably higher for those who have served in the military and have been exposed to combat. Approximately 15% of Vietnam War veterans have PTSD and up to 30% will experience it during their lives[2]. The prevalence of PTSD is also high among indigenous populations in isolated areas, such as tribal reservations and the Pacific Islands[3]. Many veterans with PTSD prefer a degree of social isolation, to reduce stimulation, hyper-arousal and interpersonal conflict, and consequently may be more likely to live in remote rural areas with low population densities.

Accepted 18 March 2004
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The Department of Veterans Affairs (VA) Medical Center in Oahu, Hawaii, provides services to veterans in a large area (12,000,000 km^2) that includes the Hawaiian Islands, Guam, the Northern Mariana Islands and American Samoa. To meet the needs of veterans with PTSD, the VA often flies clinicians to remote destinations to provide services, and flies veterans to Honolulu on the island of Oahu to receive care. The high cost of air travel and the scheduling difficulties are barriers to the provision of this care. Telemedicine appears to be a promising solution to the problem.

The preliminary research on the use of telemedicine for general clinical assessments and care has shown the feasibility and reliability of the technique, and favourable levels of patient and clinician satisfaction have been reported[4,5]. However, little is known about the clinical effectiveness and acceptability of telemedicine for the assessment or the treatment of specific disorders such as PTSD.

The main objective of the present study was to investigate the feasibility of using videoconferencing to provide a coping skills group for veteran patients with PTSD who live in remote locations.

Methods

Veteran patients aged 18–60 years with a lifetime diagnosis of PTSD made by a VA clinician and confirmed by the PTSD Checklist—Military version (see below) were referred to the study. Veterans with substance dependence or psychosis were excluded from the study, as were those who were judged to be suicidal or homicidal. Male veterans were referred to the study by mental health clinicians at the VA Community Based Outpatient Clinic and Veterans' Center in Kona on Hawaii.

Two sites, in Honolulu and Kona (260 km apart), were equipped with videoconferencing units (ViewStation V.35, Polycom). They were connected by ATM links at a bandwidth of 512 kbit/s, which supported a frame rate of 30 frames/s. The videoconferencing units were placed on 69 cm colour television monitors. At the Honolulu VA site, the clinician sat in a small office. At the Kona clinic, the study patients were seated in a semicircle at the end of a long conference table. To ensure audio clarity, extension microphones were placed on the table.

Coping skills group intervention

Although the clinical modules contained in the group intervention have been successfully used at VA clinics, their clinical efficacy has not been formally established. A protocol and manual were available to guide the clinician in the delivery of eight 90-min coping skills group sessions. The eight sessions were based on four modules:

(1) general education regarding PTSD;
(2) communication;
(3) anger management;
(4) relapse prevention.

Patients were given a PTSD coping skills workbook at the beginning of the course and were requested to review materials, complete their weekly homework and bring the workbook to the weekly sessions.

Instruments

PTSD Checklist—Military version (PCL-M)[6]

This 17-item self-report measure was developed to assess PTSD. The response to each item is on a five-point Likert scale, the anchors for severity ratings ranging from 'Not at all' to 'Extremely'. A cut-off score of 50 gave a sensitivity of 0.82 and a specificity of 0.83. Participants completed the PCL-M as a screen to determine their eligibility for inclusion in the study.

Information retention

A 12-item multiple-choice test was developed to assess participants' knowledge gained in the psychoeducational course. Patients completed this measure at baseline and after treatment (i.e. at week 8). Each item had four alternatives for participants to check. The items covered:

(1) the three primary symptoms of PTSD;
(2) the long-term negative effects of chronic stress;
(3) positive coping skills;
(4) negative coping skills;
(5) triggers;
(6) relaxation techniques;
(7) preferred communication style;
(8) the conflict resolution model;
(9) communicating intention;
(10) anger cues;
(11) anger management tools;
(12) myths about anger.

One point was awarded for each correct response. The results are reported as the mean score per item.

A six-item multiple-choice test, derived from items 1–6, was used to assess patients' knowledge of content in the middle of treatment (i.e. at week 4).

Patient satisfaction

A satisfaction questionnaire had been developed for a previous telemedicine project. It comprised 11 Likert-type items to assess different aspects of patients' satisfaction with the services provided, including overall satisfaction, quality and effectiveness of the intervention and quality of interactions (see Table 1). The questionnaire was administered at week 4 and week 8 (after treatment).

Clinician satisfaction

Similarly, a satisfaction questionnaire had been developed for a previous telemedicine project. It comprised six Likert-type items to assess the clinician's satisfaction with group therapy. These items assessed:

(1) overall satisfaction;
(2) quality of communication and interaction;
(3) ability to establish rapport;
(4) ability to maintain group control and direction;
(5) ability to disseminate information;
(6) quality of service provision.

Scores ranged from 0 to 4 with 0=low satisfaction and 4=high satisfaction. This measure was completed by the clinician after each group session.

Table 1 Median scores (interquartile range) for patient satisfaction

	Week 4		Week 8	
	FTF (n=6)	VC (n=9)	FTF (n=4)	VC (n=8)
Overall satisfaction (0=very dissatisfied, 4=very satisfied)	3.5 (3.0–4.0)	4.0 (3.0–4.0)	3.5 (0.8–4.0)	4.0 (3.0–4.0)
Providing understanding of problems (0=very unhelpful, 4=very helpful)	3.0 (3.0–3.3)	3.0 (3.0–4.0)	3.0 (3.0–3.8)	4.0 (3.0–4.0)
Providing hope for improving (0=very unhelpful, 4=very helpful)	3.0 (3.0–3.3)	3.0 (3.0–4.0)	3.5 (3.0–4.0)	4.0 (3.3–4.0)
Providing tools to improve (0=very unhelpful, 4=very helpful)	3.0 (2.5–4.0)	3.0 (2.5–4.0)	4.0 (3.3–4.0)	4.0 (3.0–4.0)
Changing behaviour (0=very unhelpful, 4=very helpful)	3.0 (1.8–3.3)	3.0 (2.5–3.0)	3.0 (3.0–3.8)	4.0 (3.3–4.0)
Addressing specific needs (0=very unhelpful, 4=helpful)	3.0 (2.8–4.0)	3.0 (3.0–4.0)	3.0 (1.5–3.8)	4.0 (3.3–4.0)
Quality of group intervention (0=poor, 4=excellent)	3.0 (3.0–4.0)	3.0 (2.5–3.5)	4.0 (4.0–4.0)	4.0 (3.3–4.0)
Attending similar group in the future (0=definitely not, 4=definitely)	3.5 (2.0–4.0)	3.0 (2.5–4.0)	4.0 (2.5–4.0)	3.0 (2.0–4.0)
Recommending the group to a friend (0=definitely not, 4=definitely)	4.0 (3.8–4.0)	4.0 (2.5–4.0)	4.0 (4.0–4.0)	4.0 (4.0–4.0)
Interaction with group facilitator (0=very uncomfortable, 4=very comfortable)	3.5 (3.0–4.0)	4.0 (3.0–4.0)	4.0 (4.0–4.0)	4.0 (3.3–4.0)
Interaction with group members (0=very uncomfortable, 4=very comfortable)	3.0 (2.8–3.3)	3.0 (3.0–3.5)	4.0 (2.5–4.0)	4.0 (3.3–4.0)

FTF=face to face; VC=videoconferencing

Procedure

Subjects were randomly assigned to the face-to-face (FTF) control and videoconferencing groups. The two groups were conducted simultaneously (same week, different day) for eight weeks. A clinician travelled by air to the Kona Veteran's Center from the VA hospital on Oahu to provide the on-site FTF group sessions and then conducted the videoconferencing group on the following day by videoconferencing from the VA hospital on Oahu. The remote site had a backup clinician on-site during the videoconferencing sessions in case of a clinical emergency and a VA technician was available in case of technical problems.

Efforts were made to hold constant the material presented to both groups by using a standard protocol. All therapy sessions took place in the same room in Kona. On completion of the study, informal debriefings were conducted to gather anecdotal information.

Results

Of the 41 referred, a total of 20 male veterans (11 Asian Pacific Islanders, seven Caucasians, two African Americans) were eligible and agreed to participate in the study. Three of these participants withdrew from the study before randomization. Nine participants were randomly assigned to the videoconferencing condition and eight to the FTF condition.

Substantial attrition occurred in the FTF group during the course of the study (Fig 1). By the end of the study, 89% of the patients remained in the videoconferencing group, whereas only 50% remained in the FTF group. Patients in the FTF group attended an average of 4.9 sessions and patients in the videoconferencing group attended 6.3 sessions; this

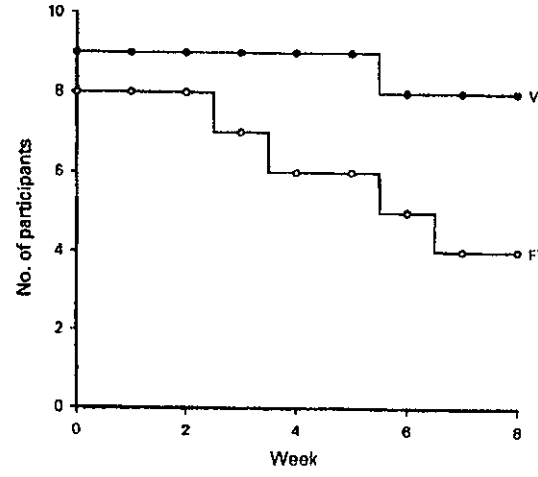

Fig 1 Numbers of patients in the videoconferencing (VC) and face-to-face (FTF) groups.

difference was not significant (P=0.20). Reported homework compliance was also slightly lower in the FTF group (homework done on 3.1 days vs 3.3 days).

PTSD Checklist—Military version

The FTF group had slightly higher PCL-M scores (mean 65.5, SD 12.8) than the videoconferencing group (mean 62.2, SD 11.9).

Patient satisfaction

At week 4, the mean total scores for patient satisfaction in the videoconferencing group (mean 35.1, SD 6.8) were similar to those of the FTF group (mean 35.5, SD 5.4); the difference was not significant (P=0.90). By week 8, the mean scores for patient satisfaction in both groups had increased, and there was still no significant difference between them (P=0.49). Table 1 shows the

Table 2 Mean (SD) score per item on the information retention multiple-choice test

Time (no. of questionnaire items)	VC group		FTF group		
	n	Mean (SD)	*n*	Mean (SD)	*P*
Baseline (12 items)	9	0.62 (0.13)	8	0.59 (0.23)	0.53
Week 4 (6 items)	8	0.76 (0.20)	6	0.67 (0.26)	0.45
Week 8 (12 items)	8	0.75 (0.17)	4	0.94 (0.04)	0.06

median scores and interquartile ranges for the individual items.

Clinician satisfaction

The clinician's mean rating of the FTF condition across the eight sessions was slightly higher than that of the videoconferencing condition, but the difference was not statistically significant (means for each item were 3.9 vs 3.8, $\chi^2=0.10$, d.f.=7, $P=0.48$). There were no significant differences in the satisfaction ratings for the two groups using paired *t*-tests.

Information retention

At week 4, patients in the two groups had similar scores for information retention. By week 8, however, the FTF group had retained more information, although the difference was not significant (Table 2).

Discussion

The findings from the present study demonstrate the feasibility of using videoconferencing to provide psycho-educational group services to veteran patients with PTSD who live in remote locations. The results for clinician and patient satisfaction were similar in the two conditions and support the feasibility of telemedicine for the provision of therapeutic services for people with PTSD. The findings on information retention suggest that veterans in both groups gained some psycho-educational information from the therapy sessions. The slightly higher retention of information from week 4 to 8 in the FTF group was probably a function of attrition and self-selection, as only four of the original eight patients in that group remained at the end of the study. Information retention stabilized from weeks 4 to 8 for the videoconferencing group. Patients may benefit from more repetition, given the breadth of information reviewed in these groups.

The appreciation of the participants and staff underlined the value that telemedicine can have in remote locations where specialized services are limited. Since PTSD has avoidance as a core feature, telemedicine may offer some advantages over traditional modes of service delivery.

Nonetheless, the results should be interpreted cautiously because of the small sample size and the high attrition rate in the control group. For example, attrition in the videoconferencing group may increase once the novelty of telemedicine subsides. Future telemedicine research with PTSD should address clinical and process outcomes using uniform, evidence-based interventions. More rigorous comparisons between modalities will be necessary to understand the effects of videoconferencing on the process and clinical outcome of mental health-care. Finally, clinician training and overall comfort with the technology are critical factors in successful implementation of telemedicine services.

Acknowledgements: This work was supported by the Office of Research and Development VISN 21 Young Investigator Award 2001, by the Department of Veterans Affairs and by the National Center for PTSD.

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